

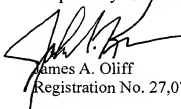
REMARKS

Claims 1-18 are pending this application. By this Preliminary Amendment, the title, drawings, Abstract, specification and claims 1-12 are amended. Claims 17 and 18 are added. No new matter is added.

The attached Appendix includes marked-up copies of the substitute specification (37 C.F.R. §1.125(b)(2)) and each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



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Attachment:  
Appendix

Date: December 11, 2001

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## APPENDIX

## Changes to Title:

The following is a marked-up version of the amended title:

SYSTEM AND METHODS FOR MANUFACTURING A THIN FILM TRANSISTOR

Thin Film Transistor and A method for manufacturing thereof

## Changes to Abstract:

The following is a marked-up version of the amended Abstract:

The present invention provides a thin film transistor (TFT) and its production method which enable the stabilizing of saturation current and improving reliability by improving the film quality of the channel region. In TFT 10, ~~the~~ The TFT includes a channel region 15 towering over ~~the a~~ gate electrode 14 through ~~the a~~ gate insulation film 12, ~~the a~~ source region 16 connecting to the channel 15 region and ~~the a~~ drain region 17 connecting to the channel region 15 on ~~the an~~ opposite side of the source region 16 are formed on the polycrystal semiconductor film 100 on which island-like patterning is performed. An indented section 155 is formed on ~~the a~~ surface of the channel region 15, and the section corresponding to the indented section 155 becomes ~~the a~~ recombination center 150 which captures the small-number carrier (holes) because the degree of the crystallization is low in the section corresponding to the indented section 155 due to shift from the optimum conditions at the time of laser annealing of the semiconductor 100. ~~Thus the invention provides a TFT and its production method which enable the stabilizing of saturation current and improving reliability by improving the film quality of the channel region.~~

A Substitute Specification is attached in accordance with 37 C.F.R. 1.125(b)(2).

## Changes to Claims:

The following is a marked-up version of the amended claims 1-12:

1. (Amended) A thin film transistor, comprising of the type wherein

\_\_\_\_\_ a gate electrode having a gate insulation film;  
\_\_\_\_\_ channel regions ~~which~~ to ~~that~~ extend through the gate insulation film in the gate electrode; and  
\_\_\_\_\_ source drain regions connected to said channel regions that are formed against a semiconductor film ~~being that is~~ is formed on the surface of an insulation substrate, wherein recombination centers which capture carriers are formed in said channel regions by part of crystal semiconductor films ~~with~~ having a relatively low degree of crystallization among crystal semiconductor films ~~forming that form~~ forming said channel regions.

2. (Amended) The thin film transistor of Claim 1, wherein said recombination centers are concentrated ~~in the vicinity of~~ adjacent to said drain regions ~~among within~~ within said channel regions.

3. (Amended) The thin film transistor of Claim 2, wherein said recombination centers are concentrated ~~in the~~ a region, among channel regions, whose distance from the drain regions is equivalent to 1/3 to 1/10 of ~~the~~ a channel length.

4. (Twice Amended) The thin film transistor according to Claim 1, wherein ~~the~~ regions, among said channel regions, in which said recombination centers are concentrated have different film thickness compared to other regions.

5. (Twice Amended) The thin film transistor according to Claim 1, wherein ~~the~~ regions, among said channel regions, in which said recombination centers are concentrated have different surface positions compared to other regions.

6. (Amended) The thin film transistor of Claim 5, wherein the regions, among said channel regions, in which said recombination centers are concentrated have different surface height positions compared to other regions due to a different thickness of the semiconductor films forming said channel regions.

7. (Amended) The thin film transistor of Claim 5, wherein the regions, among said channel regions, in which said recombination centers are concentrated have different surface height positions compared to other regions due to the formation of at least one of indented sections ~~or~~ and bulged sections in ~~the a~~ lower layer of the semiconductor films forming said channel regions.

8. (Amended) A method for manufacturing a thin film transistor comprising a gate electrode having a gate insulation film, ~~wherein~~ channel regions ~~which~~ extend through ~~the a~~ gate insulation film in the gate electrode, and source drain regions connected to said channel regions that are formed against a semiconductor film being formed on ~~the a~~ surface of an insulation substrate, wherein a section ~~with~~ having a relatively low degree of crystallization is formed within a predetermined region of said semiconductor films by applying laser annealing ~~for to~~ said semiconductor films after forming the semiconductor films ~~for forming that form~~ said channel regions.

9. (Amended) ~~A~~The method for manufacturing a thin film transistor according to Claim 8, wherein a section with a relatively low degree of crystallization is formed in the predetermined regions of said semiconductor film by applying said laser annealing ~~for to~~ said semiconductor film after forming the semiconductor films with partially different film thickness as semiconductor films ~~for forming that form~~ said channel regions.

10. (Amended) ~~A~~The method for manufacturing a thin film transistor according to Claim ~~9~~ 8, wherein a section with a relatively low degree of crystallization is formed in the predetermined regions ~~of to~~ said semiconductor film by applying said laser annealing for said semiconductor film after forming the semiconductor films with different surface height positions as semiconductor films ~~for forming that form~~ said channel regions.

11. ~~(Amended) A-~~The method for manufacturing a thin film transistor according

12. (Amended) AThe method for manufacturing a thin film transistor according

**Abstract**